

**BEST AVAILABLE COPY**

-15-

CLAIMS

DECLASSIFIED BY **BRITISH** U.S. AGENCY  
CONFIDENTIAL  
DECLASSIFIED BY **BRITISH** U.S. AGENCY

What is claimed is:

1. A non-linear dispersive pulse generator for producing pulsed radio frequency electrical signals, including a non-linear dispersive electrical circuit incorporating at least one non-linear element made of a material sensitive to low power signals, and a means of producing a variable power control signal and applying the control signal to the at least one non-linear element to modify the extent of the non-linearity of the element and thereby vary the output frequency of the radio frequency electrical signal generated.
2. A generator according to claim 1, wherein the non-linear dispersive electrical circuit includes a plurality of non linear elements in the form of inductors interconnected in series, a first array of coupling capacitors each linking the input side of one inductor to the output side of the next inductor in line for dispersive purposes, and a second array of capacitors arranged in parallel to one another such that each capacitor of the second array connects the input side of a different inductor to a common electrical line.

DECLASSIFIED BY **BRITISH** U.S. AGENCY  
CONFIDENTIAL  
DECLASSIFIED BY **BRITISH** U.S. AGENCY

- 16

DECLASSIFIED BY [redacted] DATE [redacted] AUTHORITY [redacted]

- BRITISH

DECLASSIFIED BY **U.S. ARMY**  
DECLASSIFIED BY **ORIGINATING AGENCY**  
**CONFIDENTIAL**

BEST AVAILABLE COPY

DECLASSIFIED BY 8217-SS  
HANDLE AS U.S. AGENCY  
**CONFIDENTIAL**  
DECLASSIFIED BY ORIGINATING AGENCY

5. A generator according to claim 1, wherein the each non-linear element material is ferroelectric material sensitive to an electric field and wherein the control signal producing means is operable to produce a variable low value electric field which is applied to the ferroelectric material to adjust the initial state of the non-linear element and alter the behaviour of the non-linear element during modulation of a high power radio frequency signal to change the frequency of the radio frequency signal outputted from the generator.

HANDLE AS U.S. AGENCIES.  
DECLASSIFIED BY 8217-SS  
**CONFIDENTIAL**  
DECLASSIFIED BY ORIGINATING AGENCY